

ABSTRACT OF THE DISCLOSURE:

A time frame switching method and system of data units that utilize a global common time reference, which is divided into a plurality of contiguous periodic time frames. The system is designed to operate with high-speed wavelength division multiplexing (WDM) links, i.e., with multiple lambdas. The plurality of data units that are contained in each of the time frames are forwarded in a pipelined manner through the network switches, wherein at every stage of the pipeline is tuned to a new wavelength by using a wavelength converter. Furthermore, the incoming wavelength of a time frame and wavelength determines to which output port the data units in this time frame will be switched, while the new wavelength and time frame determine to which output the data units in this time frame will be switched in the next switch on the route. The outcome of this switching method is called wavelength conversion based fractional lambda switching.

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